



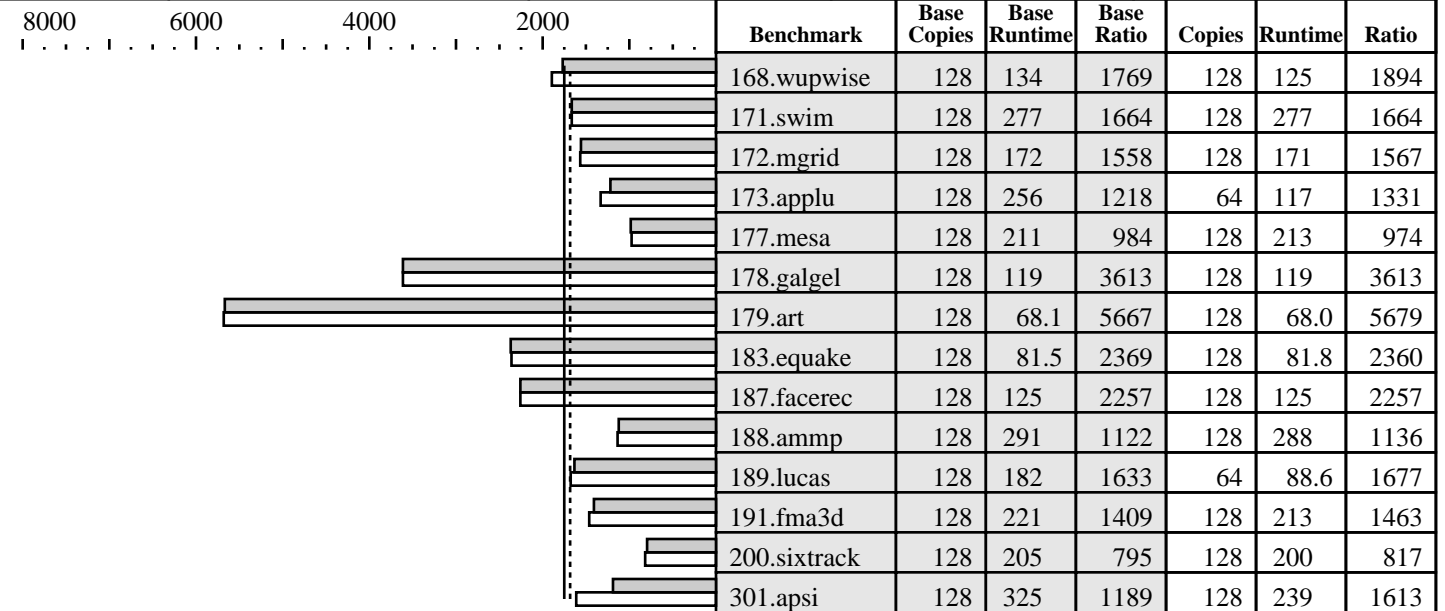
CFP2000 Result

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IBM Corporation
IBM eServer p5 595 (1900 MHz, 64 CPU)

SPECfp_rate2000 = 1752
SPECfp_rate_base2000 = 1684

SPEC license #: 11 | Tested by: IBM | Test date: Nov-2004 | Hardware Avail: Nov-2004 | Software Avail: Dec-2004



Hardware

CPU: POWER5
 CPU MHz: 1900
 FPU: Integrated
 CPU(s) enabled: 64 cores, 32 chips, 2 cores/chip (SMT on)
 CPU(s) orderable: 16,24,32,40,48,56,64
 Parallel: No
 Primary Cache: 64KBI+32KBD (on chip)/core
 Secondary Cache: 1920KB unified (on chip)/chip
 L3 Cache: 36MB unified (off-chip)/chip, 4 chips/MCM, 8 MCMs/SUT
 Other Cache: None
 Memory: 256 GB DDR2
 Disk Subsystem: 3x36GB SCSI, 15K RPM
 Other Hardware: None

Software

Operating System: AIX 5L V5.3 ML_1
 Compiler: XL C/C++ Enterprise Edition V7.0 for AIX
 XL Fortran Enterprise Edition V9.1 for AIX
 Other Software: ESSL for AIX V4.2
 File System: AIX/JFS2
 System State: Multi-user

Notes/Tuning Information

Tested by IBM

Portability Flags:

-qfixed used in: 168.wupwise, 171.swim, 172.mgrid, 173.applu,
 178.galgel, 200.sixtrack, 301.apsi
 -qsuffix=f=f90 used in: 178.galgel, 187.facerec, 189.lucas, 191.fma3d

Base Optimization Flags:

C: -qpdf1/pdf2
 -O5 -blpdata -qalign=natural
 Fortran: -qpdf1/pdf2
 -O5 -blpdata -lmass

Peak Optimization Flags:

168.wupwise: -O5 -qarch=pwr3 -qtune=pwr3 -blpdata -lmass
 171.swim: basepeak=1
 172.mgrid: -qpdf1/pdf2



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Notes/Tuning Information (Continued)

```

173.applu:      -O5 -blpdata -lmass
                F77=xlf
                users=64
177.mesa:      -qpdf1/pdf2
                -O5 -blpdata -lmass -qalign=natural
178.galgel:    basepeak=1
179.art:       -qpdf1/pdf2
                -O5 -blpdata -lmass -qalign=natural
183.earthquake: -qpdf1/pdf2
                -O5 -blpdata -lmass -qalign=natural
187.facerec:   basepeak=1
188.ammp:      -qpdf1/pdf2
                -O5 -blpdata -qalign=natural -D_ILS_MACROS
189.lucas:     -O5 -blpdata -lmass
                users=64
191.fma3d:     -qpdf1/pdf2
                -O5 -blpdata -qalign=natural -qhot=arraypad -Q
200.sixtrack:  -O3 -qhot -qarch=pwr5 -qtune=pwr5 -qfdpr
                fdpr -R3
301.apsi:      -O5 -lmass -qessl -lessl -blpdata -qsave

```

SMT: Acronym for "Simultaneous Multi-Threading". A processor technology that allows the simultaneous execution of multiple thread contexts within a single processor core. (Enabled by default)

MCM: Acronym for "Multi-Chip Module" (four dual-core processor chips + four L3-cache chips). This system contains 8 MCMs.

SUT: Acronym for "System Under Test"

ESSL: Engineering and Scientific Subroutine Library

C: IBM XL C for AIX invoked as xlc

Fortran: IBM XL Fortran for AIX invoked as xlf90

APAR IY62267 was applied to AIX 53 to achieve Maintenance 1 Level. ulimits set to unlimited.

Large page mode and memory affinity were set as follows:

```

vmo -r -o lpgg_regions=8192 -o lpgg_size=16777216 -o memory_affinity=1 -o v_pinshm=1
chuser capabilities=CAP_BYPASS_RAC_VMM,CAP_PROPAGATE $USER
shutdown -r
export MEMORY_AFFINITY=MCM

```

The following config-file entry was used to assign each benchmark process to a core:

```
submit = schedule.128 \$$SPECUSERNUM $command
```

with the "schedule.128" function defined as follows:

```

#!/bin/ksh
index=$1
shift 1 # Strip off the residual arguments; the rest is the command.
if [[ $index -ge 64 ]]
then
target=$((1+2*(index-64)))
else
target=$((2*index))
fi
bindprocessor $$ $target # Schedule this job to the corresponding core.
$* # Now run the command.

```

Standard Performance Evaluation Corporation

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Notes/Tuning Information (Continued)

The "bindprocessor" AIX command binds a process to a CPU core.